

Date: Wednesday, 18/06/2008 1:26:51 PM  
 User: Julie Lecocq

## Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services		Drawing Name	: BRACKET ASSEMBLY		
Job Number	: 39923		Part Number	: D3121144		
Estimate Number	: 10290		Drawing Number	: D3121 REV E		
P.O. Number	:		Project Number	: N/A		
This Issue	: 18/06/2008 S.O. No. :		Drawing Revision	: E		
Prsht Rev.	: NC		Material	:		
First Issue	: / / Type : MACHINED PARTS		Due Date	: 11/07/2008		Qty: 8 Um: Each
Previous Run	: 39015					
Written By	:					
Checked & Approved By	: <u>JUL 08/08/08</u>					
Comment	: Est Rev:Pick:A 04.02.18 New issue KJ/DS Est.Rev:B ECN 1060 07-11-12 DD verified by:EC					

## Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
1.0	M174B1000X02000	17-4 SS Bar   <b>Comment:</b> Qty.: 0.3864 f(s)/Unit Total: 3.0912 f(s) <b>Material:</b> 17-4 SS Bar per AMS 5604/5643 <small>1250</small> <small>(M17-4-B1000x02.000)</small> <b>Identify for D3121-114</b> <b>Batch:</b> <u>M108595 x7</u> <u>M108595 x1</u> <u>JUL 08/08/08</u> <u>J.L. 08/07/08 x7</u>
2.0	BAND SAW	BAND SAW   <b>Comment:</b> BAND SAW <u>1250</u> <b>Cut blanks:</b> <u>(1.000" x 2.000") 4.425" long</u> <u>J.L. 08/07/08 x7</u>
3.0	HAAS1	HAAS CNC VERTICAL MACHINING #1   <b>Comment:</b> HAAS CNC VERTICAL MACHINING #1  <u>1-Machine D3121-114 as per Folio FA330 and Dwg D3121 Identify as D3121-114</u> <u>2-Deburr</u> <u>3-Scribe batch number</u> <u>8/08/08/01</u> <u>J.L. 08/07/08 x7</u> <u>8</u>
4.0	QC2	INSPECT PARTS AS THEY COME OFF MACHINE   <b>Comment:</b> INSPECT PARTS AS THEY COME OFF MACHINE <u>8/08/08/01</u>

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Wednesday, 18/06/2008 1:26:51 PM  
User: Julie Lecocq

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: BRACKET ASSEMBLY

Job Number: 39923

Part Number: D3121144

Job Number:



Seq. #: Machine Or Operation:

Description :

5.0 QC8 SECOND CHECK



Comment: SECOND CHECK

*SA 08/08/08*

6.0 D312121 Bolt



Comment: Qty.: 2.0000 Each(s)/Unit Total : 16.0000 Each(s)

Pick:

Qty Part Number Description Batch  
2 D3121-21 Bolt *1340284*

*EJ 08/08/08*

7.0 D3121241 Bearing Assembly



Comment: Qty.: 2.0000 Each(s)/Unit Total : 16.0000 Each(s)

Pick:

Qty Part Number Description Batch  
2 D3121-241 Bearing Ass *1340157*

*EJ 08/08/08*

8.0 SMALL FAB 1 SMALL & MEDIUM FAB RESOURCE 1



Comment: SMALL & MEDIUM FAB RESOURCE 1

Assemble D3121-143 as per Dwg D3121.

*EJ 08/08/08 8*

9.0 QC5 INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

*S 08/08/08 (8)*

10.0 PACKAGING 1 PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: \_\_\_\_\_

*C 8/8/08 (8)*

11.0 QC21 FINAL INSPECTION/W/O RELEASE



*(8)*

Comment: FINAL INSPECTION/W/O RELEASE

*D 08/06/08*

Job Completion



*U 8/8/08*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order: 39923
Description: Bracket	Part Number:	D3121-114
Inspection Dwg: D3121 Rev: E		Page 1 of 2

### FIRST ARTICLE INSPECTION CHECKLIST

First Article  Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.080	+/-0.010	0.080	✓			
0.300	+/-0.010	0.300	✓			
R0.375	+/-0.010	0.375	✓			
1.54	+/-0.030	1.540	✓			
0.350	+/-0.010	0.349	✓			
R0.25	+/-0.030	0.250	✓			
Ø0.392	+0.002/-0.000	0.393	✓			
Ø0.201	+0.005/-0.000	0.201	✓			
0.100	+/-0.010	0.100	✓			
2.540	+/-0.010	2.536	✓			
1.590	+/-0.010	1.586	✓			
0.160	+/-0.010	0.159				
0.400	+/-0.010	0.405	✓			
1.220	+/-0.010	1.220	✓			
1.600	+/-0.010	1.604	✓			
3.80	+/-0.030	3.800	✓			
1.800	+/-0.010	1.803	✓			
R0.50	+/-0.030	0.500	✓			
0.130	+/-0.010	0.129	✓			
3.41	+/-0.030	3.410	✓			
3.65	+/-0.030	3.641	✓			
2.24	+/-0.030	2.210	✓			
45°	+/-0.1°	45°	✓			
R0.25	+/-0.030	0.250	✓			
3.97	+/-0.030	3.966	✓			
R0.38	+/-0.030	0.380	✓			
Ø0.392	+0.002/-0.000	0.393	✓			
Ø0.201	+0.005/-0.000	0.201	✓			
0.268	+/-0.010	0.268	✓			
R0.260	+/-0.010	0.260	✓			
0.080	+/-0.010	0.080	✓			
0.300	+/-0.010	0.300	✓			
0.381	+/-0.010	0.381	✓			
0.201	+/-0.010	0.203	✓			

DART AEROSPACE LTD	Work Order:	39923
Description: Bracket	Part Number:	D3121-114
Inspection Dwg: D3121	Rev: E	Page 2 of 2

## **FIRST ARTICLE INSPECTION CHECKLIST**

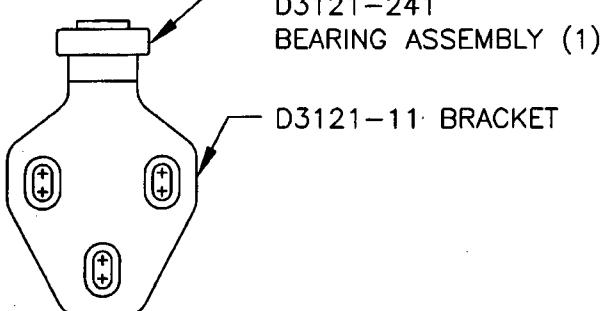
## X First Article      Prototype

Measured by:	DJP	Audited by:	SD	Prototype Approval:	N/A
Date:	08/07/30	Date:	08/07/10	Date:	N/A

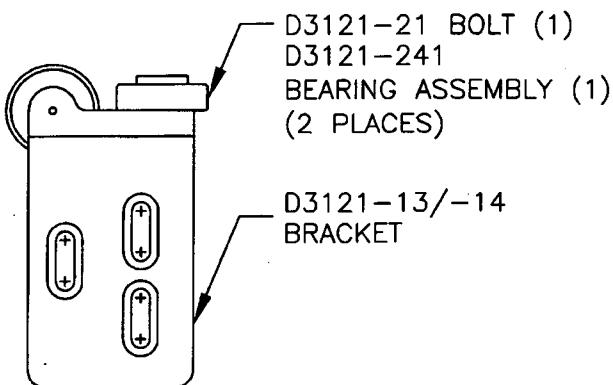
Rev	Date	Change	Revised by	Approved
A	03.12.08	New Issue P/O D3121-144	KJ/RF	
B	04.05.05	Dimensions changed/re-arranged per Dwg revision	KJ/JLM	
C	06.06.14	Dwg Rev. updated	KJ/JLM	
D	08.01.16	Dimensions updated per Dwg Rev E	KJ/EC/DD	
E	08.05.20	0.032 dimension was 0.32	KJ/DD	 

**DART**

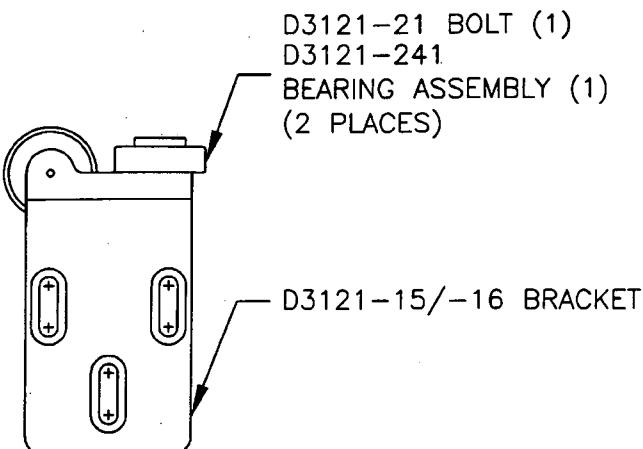
DESIGN <i>4</i>	DRAWN BY <i>CE</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>4</i>	APPROVED <i>✓</i>	DRAWING NO. D3121	REV. E SHEET 1 OF 10
DATE 07.11.07		TITLE BRACKET ASSEMBLY	SCALE 1:2
A	02.04.15	NEW ISSUE	
B	03.01.16	ADD RIDGES; ADD MAT'L PROP; FIX P/N ADD -141/-143/-144/-145/-146	
C	04.02.17	ADD CLEARANCE; USE -241 BEARING	
D	06.05.17	D3121-25 CAP WAS 1.024, NOW 1.000	
E	07.11.07	ADD TOLERANCE TO 0.032 (DETAIL B)	

**RELEASED**  
*07.11.07***D3121-041 BRACKET ASSEMBLY**

(REPLACES PREMIER P/N B30-23000-33)

**D3121-043 (SHOWN) / D3121-044 (OPPOSITE)  
BRACKET ASSEMBLY**

(REPLACES PREMIER P/N B30-23000-37/-38)

**D3121-045 (SHOWN) / D3121-046 (OPPOSITE)  
BRACKET ASSEMBLY**

(REPLACES PREMIER P/N B30-23000-35/-36)

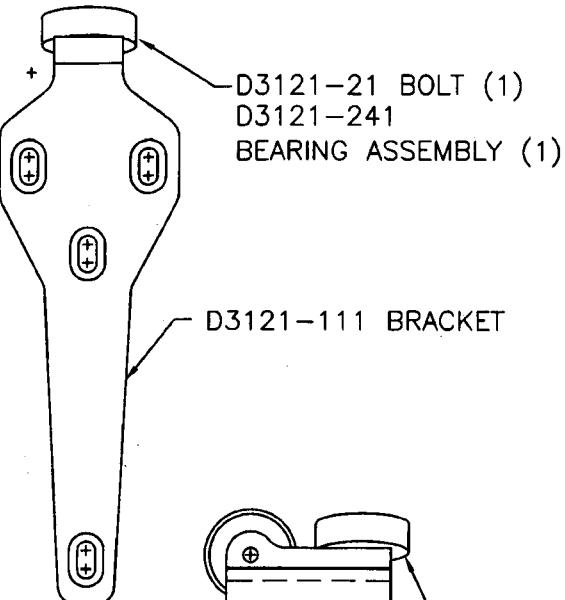
SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 39923

**Copyright © 2002 by DART AEROSPACE LTD**

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

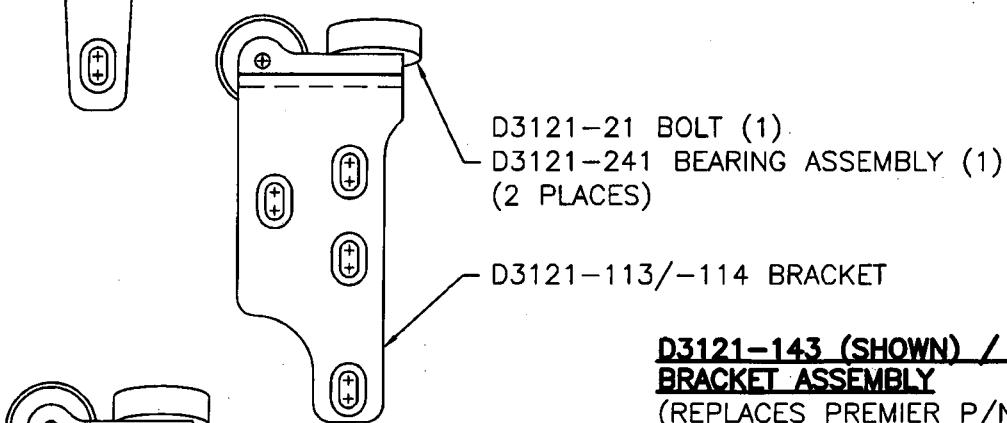
**DART**

DESIGN <i>4</i>	DRAWN BY <i>CE</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
CHECKED <i>4</i>	APPROVED <i>MM</i>	DRAWING NO. D3121
DATE 07.11.07		REV. E SHEET 2 OF 10 SCALE 1:2 TITLE BRACKET ASSEMBLY

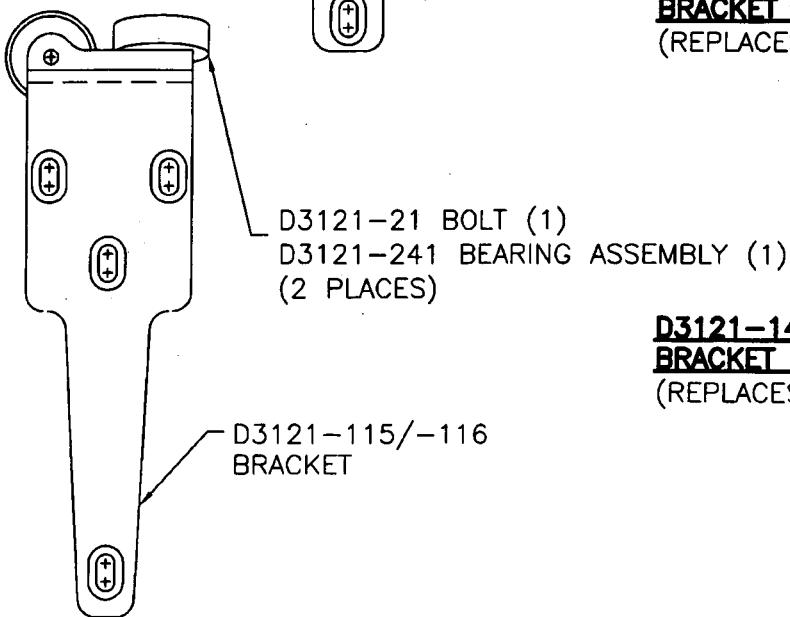


**D3121-141 BRACKET ASSEMBLY**  
(REPLACES PREMIER P/N B30-23001-01)

**RELEASED**  
*(07.11.07)*



**D3121-143 (SHOWN) / D3121-144 (OPPOSITE)  
BRACKET ASSEMBLY**  
(REPLACES PREMIER P/N B30-23000-03/-04)



**D3121-145 (SHOWN) / D3121-146 (OPPOSITE)  
BRACKET ASSEMBLY**  
(REPLACES PREMIER P/N B30-23000-05/-06)

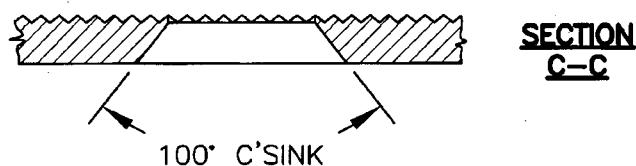
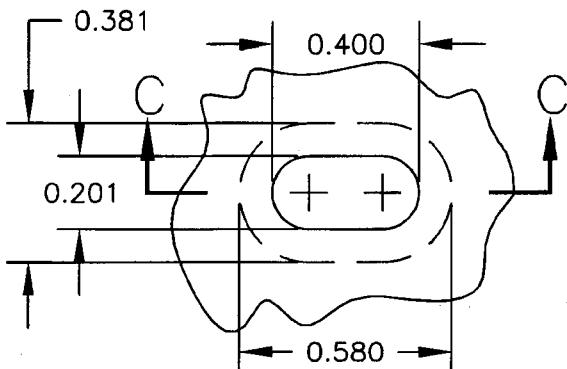
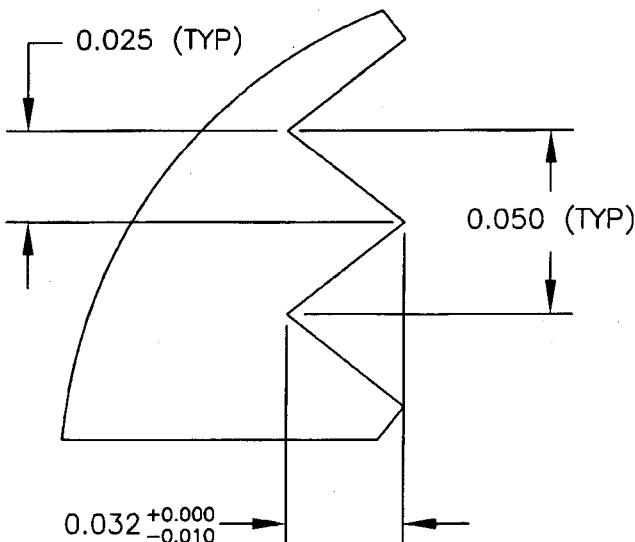
SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. *39923*

Copyright © 2002 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

**DART**

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
CHECKED	APPROVED	DRAWING NO. D3121
DATE		REV. E SHEET 3 OF 10
07.11.07		SCALE 1:1

**DETAIL A:**  
**SLOT DETAIL**SCALE 2:1  
VIEW ROTATED**RELEASED**  
07.11.07**DETAIL B:**  
**RIDGE DETAIL**  
PARTIAL SECTION  
SCALE 1:20

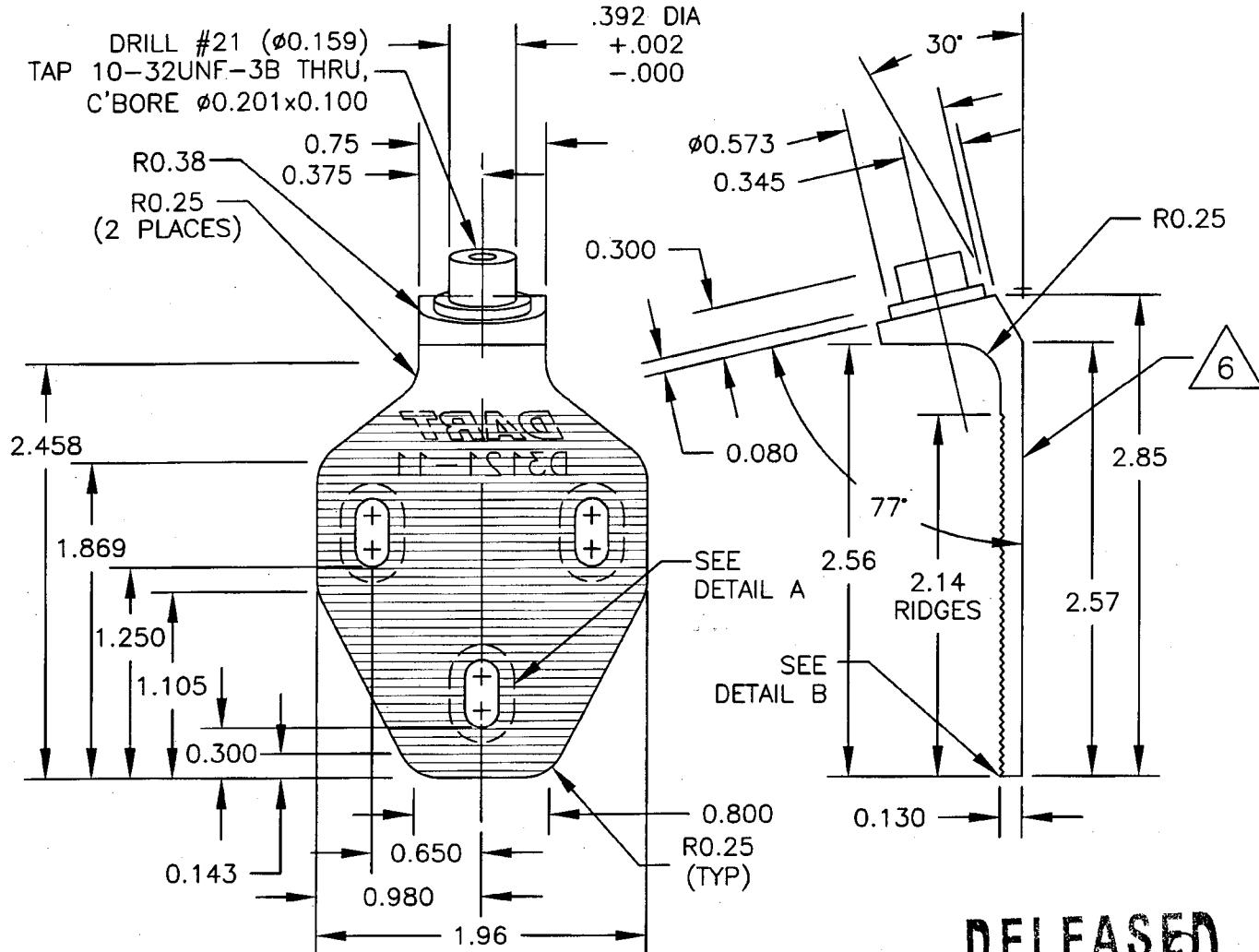
SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 39923

Copyright © 2002 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

**DART**

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
CHECKED	APPROVED	DRAWING NO. D3121
DATE		REV. E
07.11.07		SHEET 4 OF 10



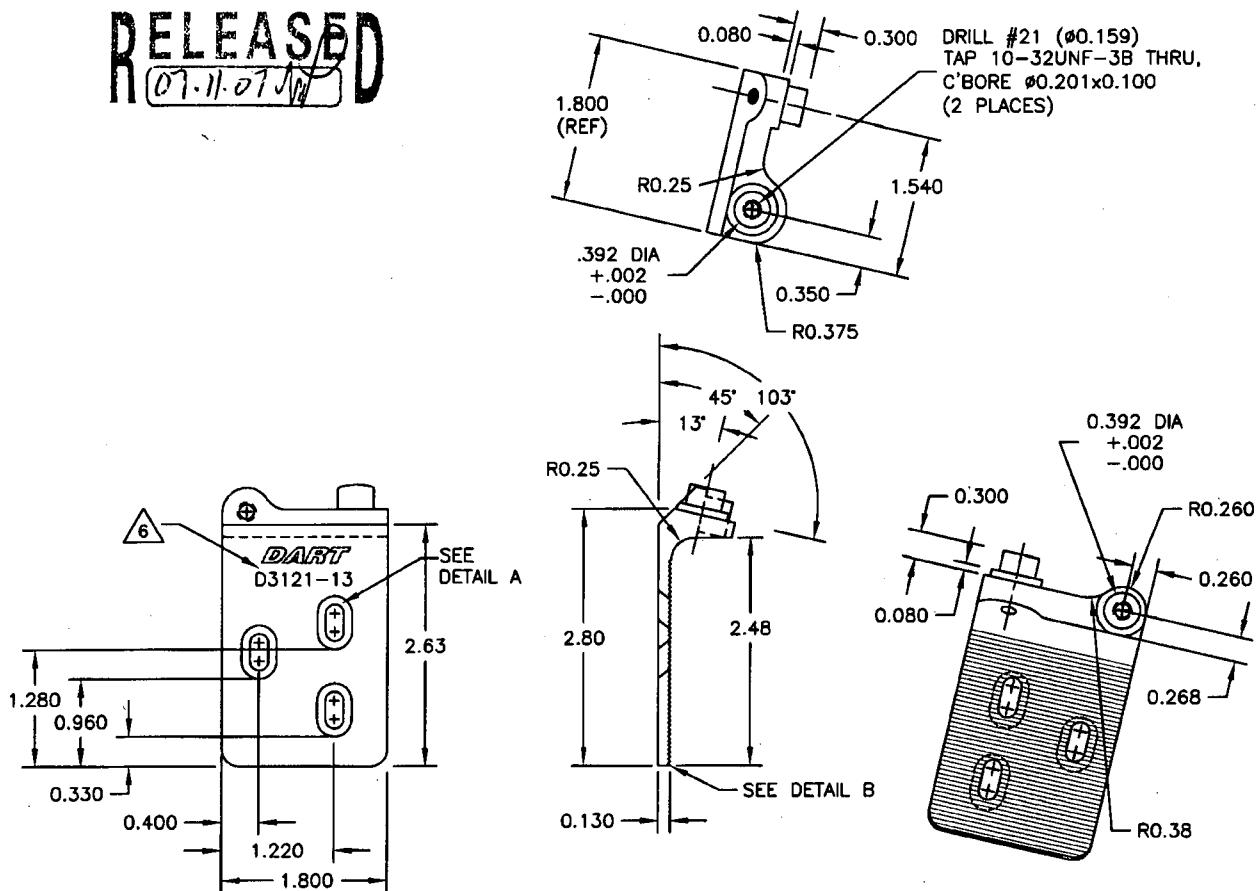
### D3121-11 BRACKET

- 1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)  
MIN ULTIMATE TENSILE = 150 ksi  
MIN YIELD TENSILE = 100 ksi
- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 5) ENGRAVE DART P/N & LOGO AS SHOWN
- 6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 39923

**DART**

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO.	REV. E
		D3121	SHEET 5 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:2

**RELEASED**  
(07.11.07)

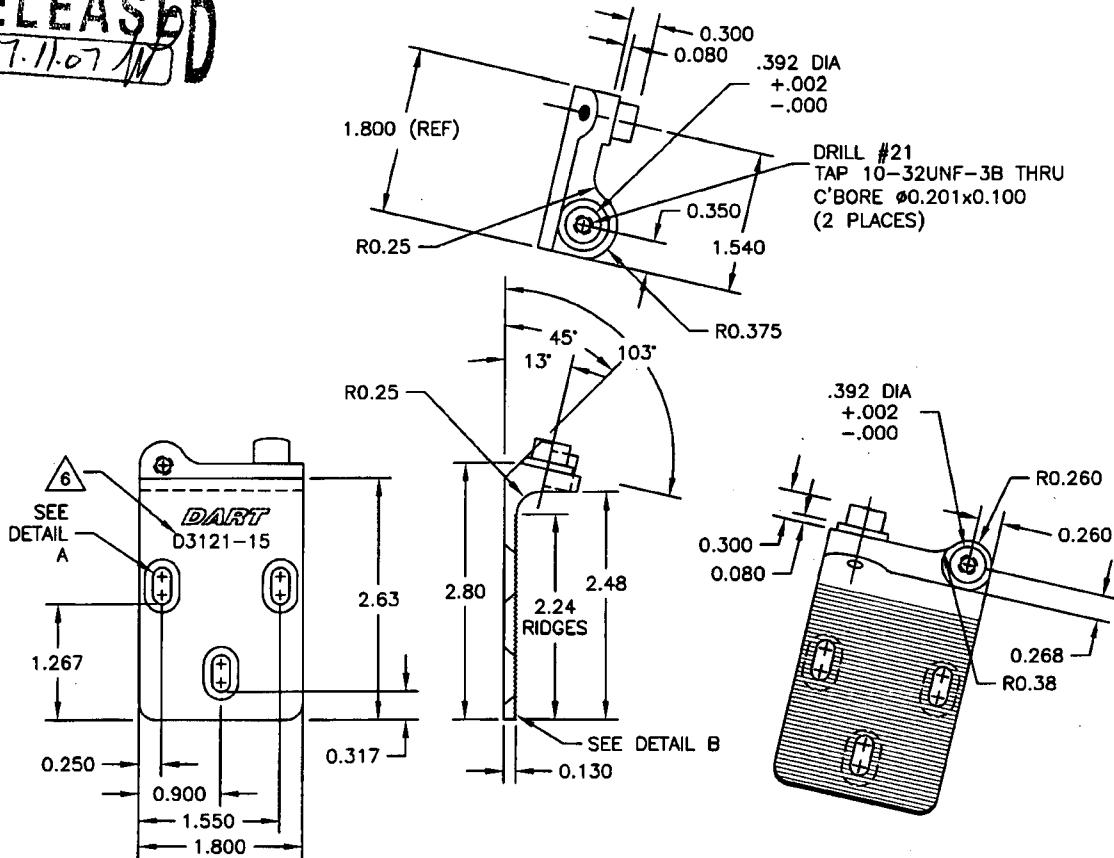
D3121-13 BRACKET (SHOWN)  
D3121-14 BRACKET (OPPOSITE)

- 1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)  
 MIN ULTIMATE TENSILE STRENGTH = 150 ksi  
 MIN YIELD TENSILE STRENGTH = 100 ksi
- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 5) ENGRAVE DART P/N & LOGO AS SHOWN
- 6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

SHOP COPY  
 RETURN TO  
 ENGINEERING  
 UNCONTROLLED COPY  
 SUBJECT TO AMENDMENT  
 WITHOUT NOTICE  
 WORK ORDER  
 NO. 39923

**DART**

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO.	REV. E
		D3121	SHEET 6 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:2

**RELEASED**  
07.11.07

**D3121-15 BRACKET (SHOWN)**  
**D3121-16 BRACKET (OPPOSITE)**

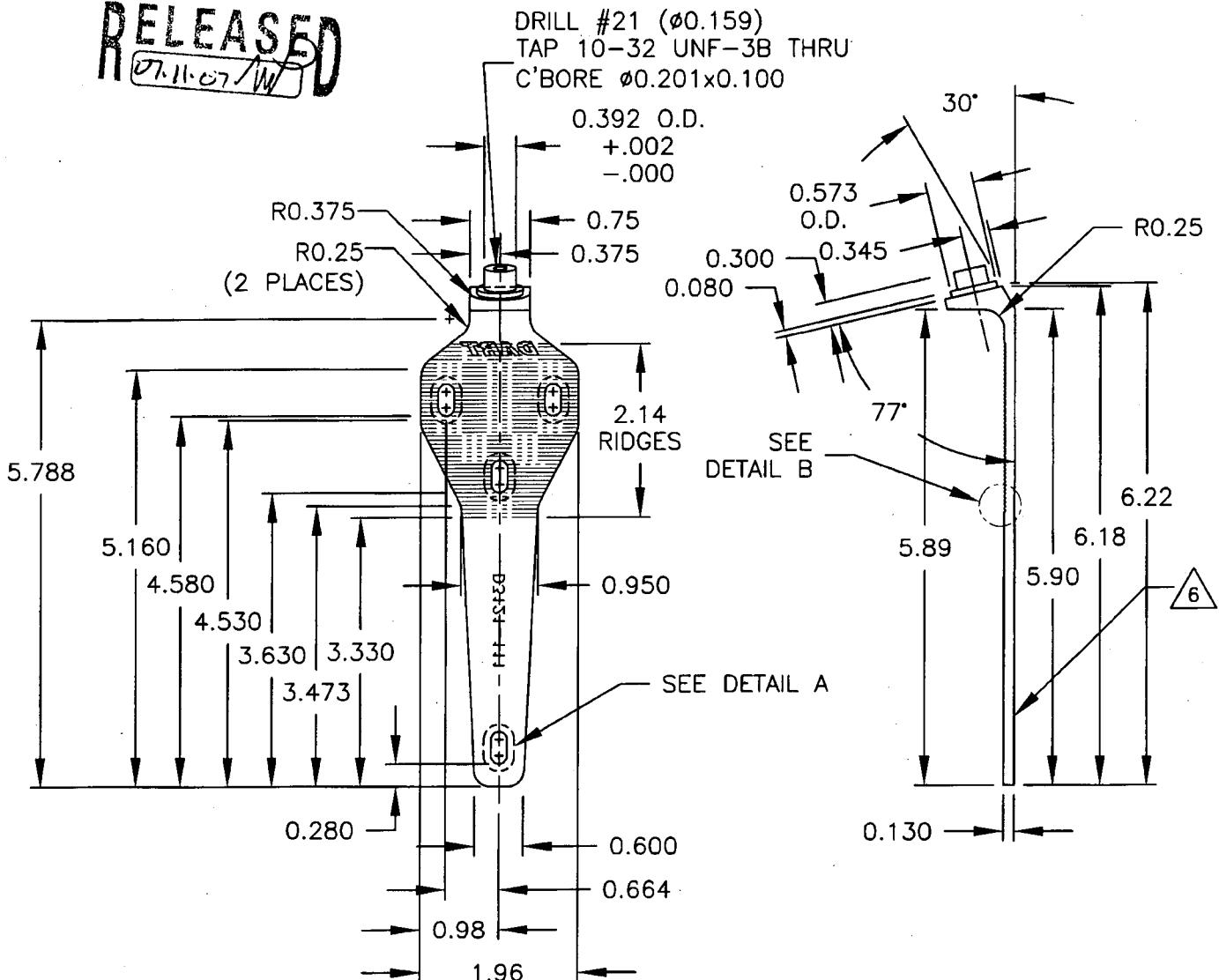
- 1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)  
 MIN ULTIMATE TENSILE = 150 ksi  
 MIN YIELD TENSILE = 100 ksi
- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 5) ENGRAVE DART P/N AND LOGO AS SHOWN
- 6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

SHOP COPY  
 RETURN TO  
 ENGINEERING  
 UNCONTROLLED COPY  
 SUBJECT TO AMENDMENT  
 WITHOUT NOTICE  
 WORK ORDER  
 NO. 39923



DESIGN <i>#</i>	DRAWN BY <i>CE</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>#</i>	APPROVED <del>CE</del>	DRAWING NO. D3121	REV. E SHEET 7 OF 10
DATE 07.11.07		TITLE BRACKET ASSEMBLY	SCALE 1:2

RELEASED  
07.11.07 / W



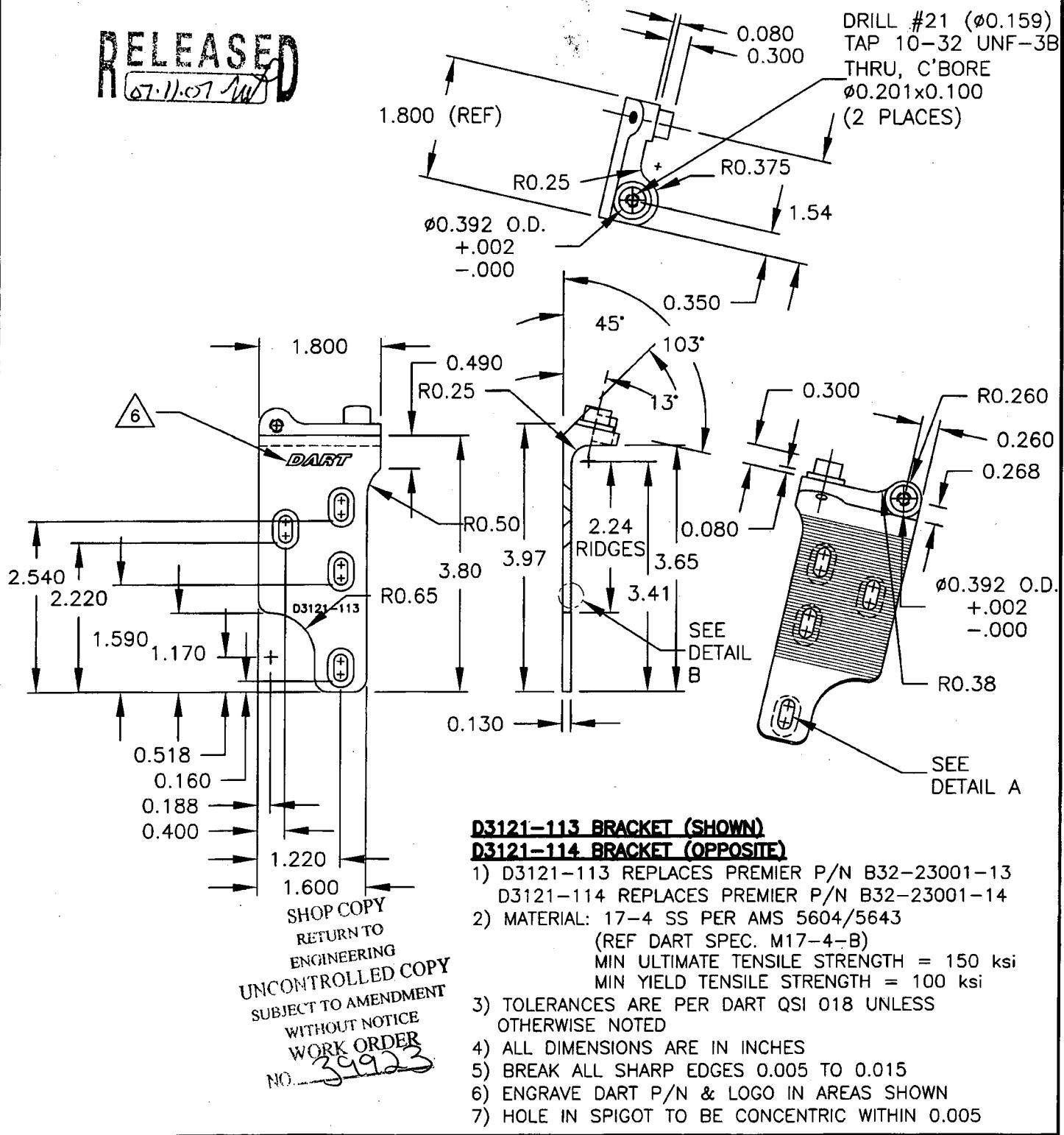
D3121-111 BRACKET

- 1) REPLACES PREMIER P/N B32-23001-11
- 2) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)  
MIN ULTIMATE TENSILE = 150 ksi  
MIN YIELD TENSILE = 100 ksi
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 6) ENGRAVE DART P/N & LOGO IN AREAS SHOWN
- 7) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 39923

**DART**

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO.	REV. E
		D3121	SHEET 8 OF 10
DATE	TITLE	SCALE	
07.11.07	BRACKET ASSEMBLY	1:2	

**RELEASED**  
07.11.07**D3121-113 BRACKET (SHOWN)  
D3121-114 BRACKET (OPPOSITE)**

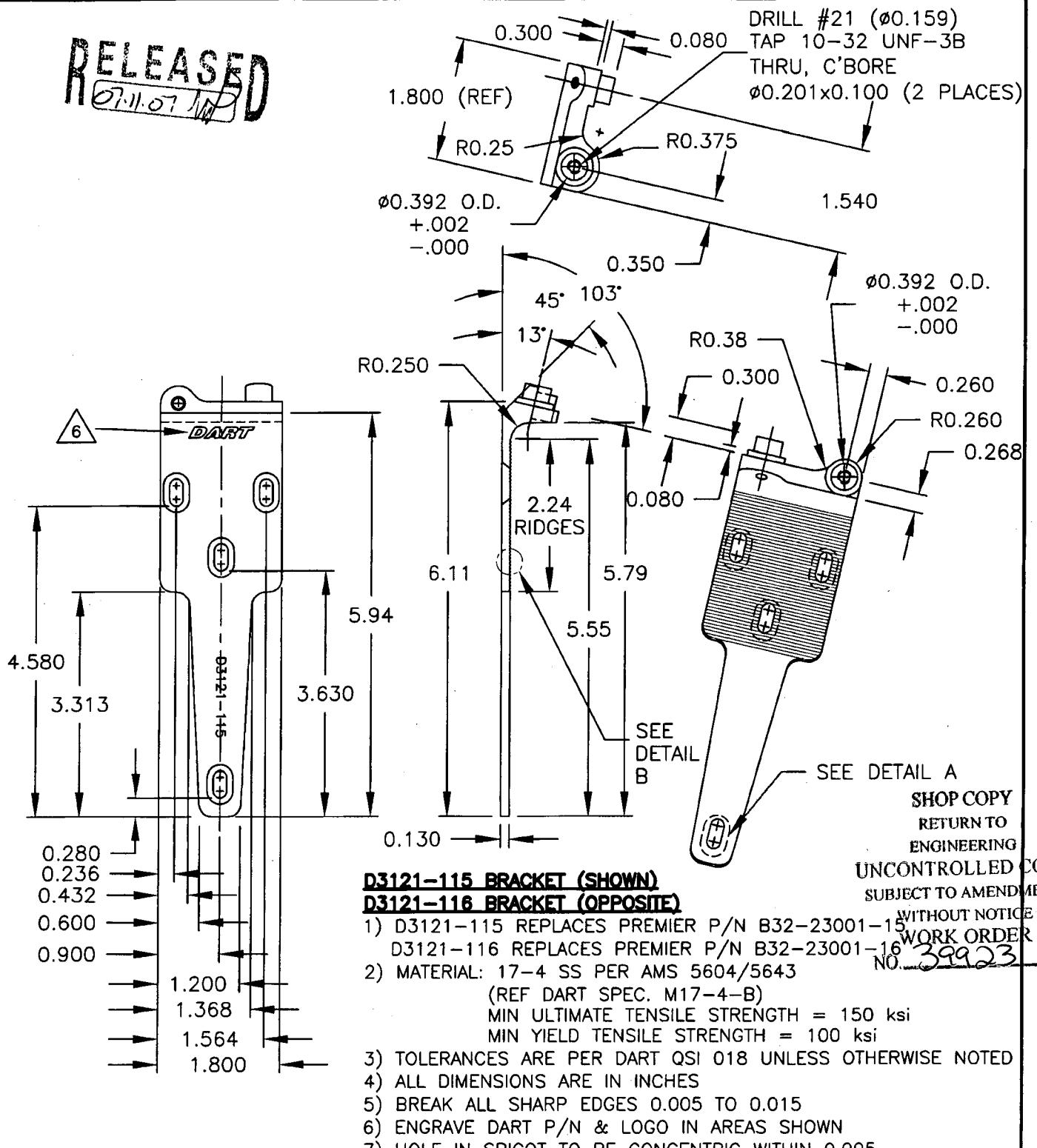
- 1) D3121-113 REPLACES PREMIER P/N B32-23001-13  
D3121-114 REPLACES PREMIER P/N B32-23001-14
- 2) MATERIAL: 17-4 SS PER AMS 5604/5643  
(REF DART SPEC. M17-4-B)  
MIN ULTIMATE TENSILE STRENGTH = 150 ksi  
MIN YIELD TENSILE STRENGTH = 100 ksi
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 6) ENGRAVE DART P/N & LOGO IN AREAS SHOWN
- 7) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

**Copyright © 2002 by DART AEROSPACE LTD**

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

**DART**

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO.	REV. E
		D3121	SHEET 9 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:2

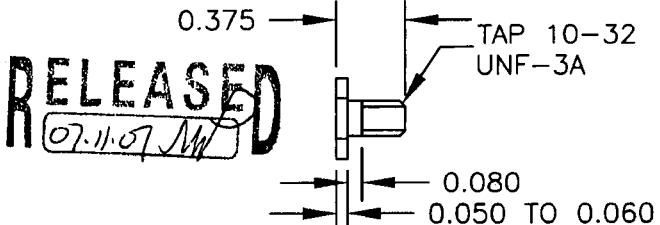
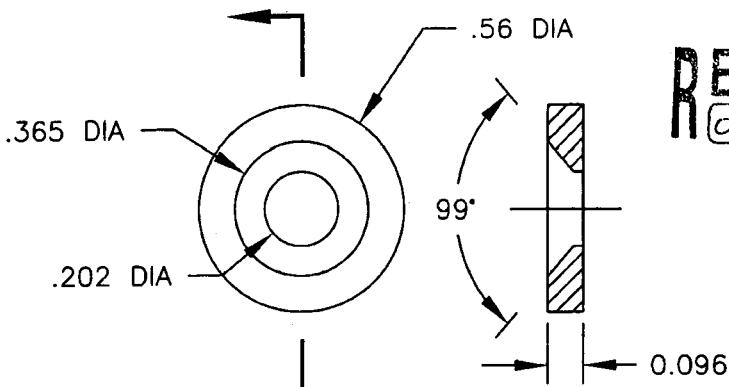
**RELEASED**  
07.11.07

Copyright © 2002 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

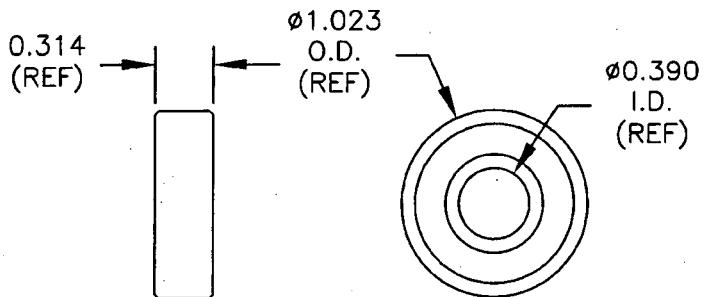
**DART**

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO.	REV. E
		D3121	SHEET 10 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:1



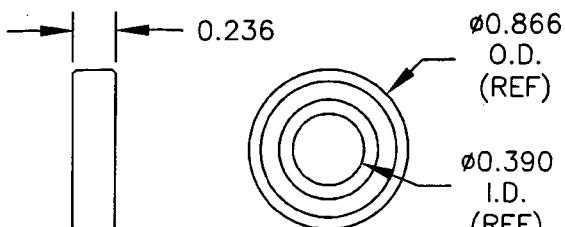
#### D3121-17 WASHER (SCALE 2:1)

- 1) REPLACES PREMIER P/N B32-23001-17
- 2) MATERIAL: AISI 303 SS ROUND BAR, ANNEALED (REF DART SPEC. M303R)
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) BREAK ALL SHARP EDGES 0.005 TO 0.015



#### D3121-19 BEARING (SCALE 1:1)

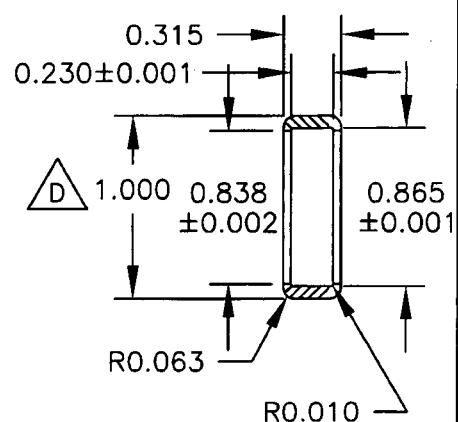
- 1) POSSIBLE SUPPLIER: KING BEARING P/N 6000-2ZJ/EM  
FAFNIR P/N 9100KDD
- 2) ALL DIMENSIONS ARE IN INCHES



#### D3121-23 BEARING (SCALE 1:1)

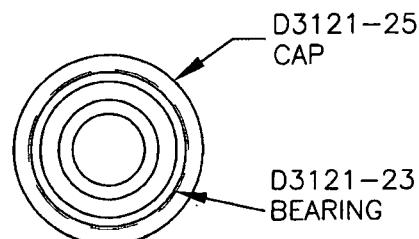
- 1) POSSIBLE SUPPLIER: SKF P/N 61900-2Z  
OR KML P/N 6900-2Z
- 2) ALL DIMENSIONS ARE IN INCHES

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 39923



#### D3121-25 CAP (SCALE 1:1)

- 1) MATERIAL: DELRIN ROD, Ø1.25 (REF DART SPEC. M-DELRIN-R1.250)
- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) ALL DIMENSIONS ARE IN INCHES



#### D3121-241 BEARING ASSEMBLY (SCALE 1:1)